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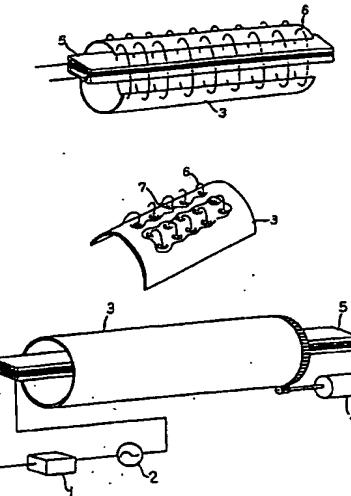
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## (54) FIXING DEVICE FOR PRINTING APPARATUS OR THE LIKE

(11) 2-108541 (A) (43) 20.4.1990 (19) JP  
 (21) Appl. No. 63-262124 (22) 18.10.1988  
 (71) NEC CORP(1) (72) KIYOSHI TAKAHASHI(1)  
 (51) Int. Cl<sup>s</sup>. B41F23/04



**PURPOSE:** To shorten the time required for making a heat roller uniform in temperature by providing a high frequency wave generating circuit, a coil driven by said high frequency generating circuit and a cylindrical heat roller made of magnetic substance and arranged in a magnetic field produced by said coil.

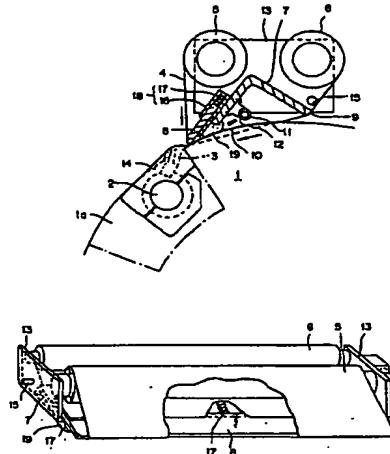
**CONSTITUTION:** A cylindrical heat roller 3 made of magnetic substance is so placed as to be rotatable by a constant speed motor 4. A coil 5 is built in the heat roller 3, and connected to a high frequency wave generating circuit 2. A current controlling circuit 1 is provided so as to prevent a large current from flowing in the coil 5. When a high frequency wave is sent to the coil 5 by the high frequency wave generating circuit 2, a magnetic flux 6 is generated. It is so arranged that the density of magnetic flux on the cylindrical heat roller 3 made of magnetic material is made uniform by elongating the coil 5. When the magnetic flux 6 is generated, an eddy current 7 is generated on the heat roller 3, which generates heat by the resistance of the heat roller 3, thereby effecting fixing. Accordingly, a part of the heat roller in contact with a paper can be heated uniformly in a short time.

## (54) IMPRESSION CYLINDER CLEANING APPARATUS OF OFFSET SHEET- FEED PRESS

(11) 2-108543 (A) (43) 20.4.1990 (19) JP  
 (21) Appl. No. 63-261395 (22) 19.10.1988  
 (71) DAINIPPON PRINTING CO LTD (72) YOSHIKI NOSAKA(2)  
 (51) Int. Cl<sup>s</sup>. B41F35/06

**PURPOSE:** To positively bring a cleaning cloth into uniform contact with the circular arc surface of an impression cylinder by providing a pressurizing mechanism which elastically presses a blade for pressing said cleaning cloth from the rear surface thereof towards said impression cylinder so that said blade is able to slide on a support body towards said impression cylinder.

**CONSTITUTION:** A U-shaped guide plate 16 is provided at one end of a mountain-like support body 7 and a blade 8 is accommodated within a groove of the guide plate 16 in a manner slidable by a coil spring 17. This blade 8 is brought into uniform contact with the surface of an impression cylinder by the contraction of the coil spring 17. A cleaning cloth 4 is uniformly brought in linear contact with the impression cylinder surface by the blade 8. The other end of the support body 7 is rendered a guide part 9, whereby the cleaning cloth 4 is turned into a circular shape and brought into contact with the impression cylinder 1. Since a felt pad 19 is provided at the side of the rear surface of the blade, the cleaning cloth 4 although it is pressed by the blade can be more strongly pressed into face-to-face contact with the surface of the impression cylinder. Accordingly, the impression cylinder can be automatically cleaned in a simple manner, thereby having labor and improving productivity.



## (54) INKJET PRINTING HEAD

(11) 2-108544 (A) (43) 20.4.1990 (19) JP  
 (21) Appl. No. 63-263066 (22) 19.10.1988  
 (71) SEIKO EPSON CORP (72) HARUHIKO KOTO(1)  
 (51) Int. Cl<sup>s</sup>. B41J2/045

**PURPOSE:** To achieve easy manufacture of a printing head by letting the deformation of a movable mechanism section caused upon expansion, contraction or phase change of a member due to the temperature change by heat generation or heat absorption influence the movement of a liquid ink, whereby said ink is discharged.

**CONSTITUTION:** In printing, an ink is supplied from an ink feed hole 21 into containers 13, 14; and an electrode 15 is driven by a complimentary push-pull circuit. When the electrode 5 is made conductive in a positive direction, semiconductors 19, 20 generate heat at respective sides in contact with an electrode 18 by Peltier effect, while absorbing heat at the sides in contact with the electrode 15. Therefore, a polysulfone film 17 thermally expands and a polysulfone film 16 contracts. As a result, the vibrating plate as a whole is bent downwards, whereby the ink is discharged from a nozzle. When the electrode 15 is supplied with a current in a negative direction, the semiconductors at the sides in contact with the electrode 18 absorb heat and they at the sides in contact with the electrode 15 generate heat, and accordingly the vibrating plate is returned almost in a horizontal direction. A printing head repeats power supplying the positive and negative directions alternately in accordance with printing data of every pixel, thereby performing printing. The vibrating plate of the printing head can be thus manufactured in an easy manner, for example, by bonding members each other.

